Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L24	139	(test near3 pattern) and STI	US-PGPUB; USPAT	OR	ON	2005/08/25 15:49
L25	113	24 and @ad<"20031105"	US-PGPUB; USPAT	OR	ON	2005/08/25 15:47
L26	59	(test near3 (marker or mask)) and STI	US-PGPUB; USPAT	OR	ON	2005/08/25 15:48
L27	50	26 and @ad<"20031105"	US-PGPUB; USPAT	OR	ON	2005/08/25 15:47
L28	40	27 not 25	US-PGPUB; USPAT	OR	ON	2005/08/25 15:47
L29	44	(test near3 (marker or mask)) and STI	USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/08/25 15:48
L30	40	(test near3 pattern) and STI	USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/08/25 15:49
L31	38	30 not 29	USOCR; EPO; JPO; DERWENT; IBM_TDB	OR	ON	2005/08/25 15:49

DOCUMENT-IDENTIFIER: US 20030223630 A1

TITLE: Overlay metrology and control method

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Detail Description Paragraph - DETX (105):
   [0148] The calibration mode 302 begins by forming one or more test dies 306
on one or more test wafers 308. This is generally accomplished with **test
reticles whose patterns are repeatedly printed on the test** wafers 308 (e.g.,
resist/resist wafers). As should be appreciated, each of the test dies 306
contains a plurality of targets 320 that correspond to the target **patterns
located on the test** reticles. The reticle patterns are typically printed on a
plurality of test wafers 308 using different lithographic parameters. In the
illustrated embodiment, the reticle **patterns are printed on a first test** wafer
308A using a first set of lithographic parameters and the reticle **patterns are
printed on a second test** wafer 308B using a second set of lithographic
parameters. The lithographic parameters generally correspond to the parameters
that would be used during production for various layers of the device. For
example, the first set of lithographic parameters may be used to form reticle
patterns in a first layer (L1) and the second set of parameters may be used to
form reticle patterns in a second layer (L2). The reticle patterns printed on
each of these wafers may or may not be from the same test reticles. Although
only two wafers are shown, it should be noted that this is not a limitation and
that any number of test wafers 308 may be used.

Detail Description Paragraph - DETX (139):
   [0181] We present the results of such measurements on various marks, which
were produced in a number of different process layer combinations, and
patterned using a DUV scanner. The same reticle set was used to pattern wafers
on different process layers and process conditions. As described above, by
appropriate statistical analysis, the breakdown of the total OMF into a
reticle-induced OMF component and a random OMF component was facilitated. We
compare the OMF of traditional box-in-box overlay marks and of new
grating-based overlay marks. The reticle-induced OMF showed an improvement of
30% when using the new grating-based overlay mark. Furthermore, in a series of
wafers run through an **STI**-process with different CMP times, the random
component of the OMF of the new grating-based overlay mark was observed to be
50% less sensitive to process variation compared with Box in Box marks. This
shows that the new grating-based overlay mark is more robust against

CMP-process variations than the traditional box-in-box overlay mark.